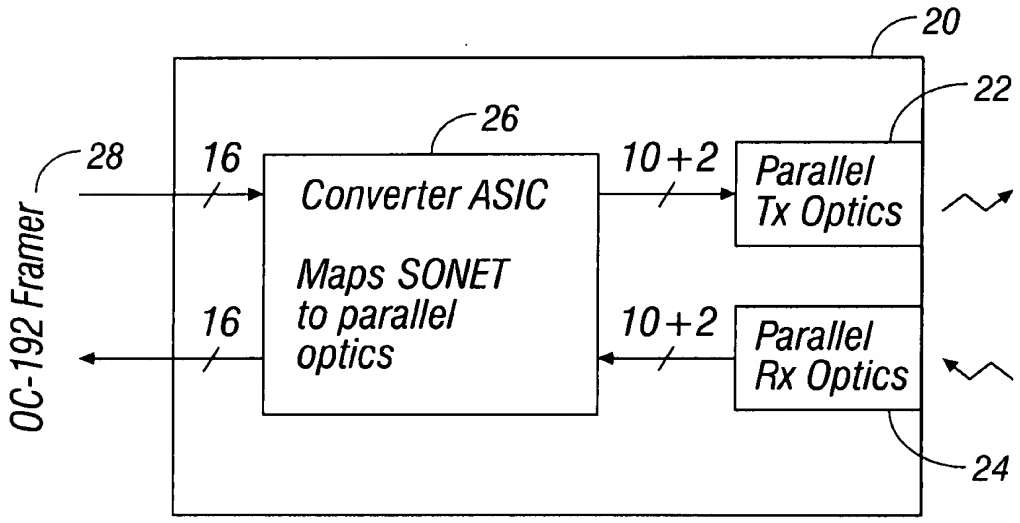


FIG. 1

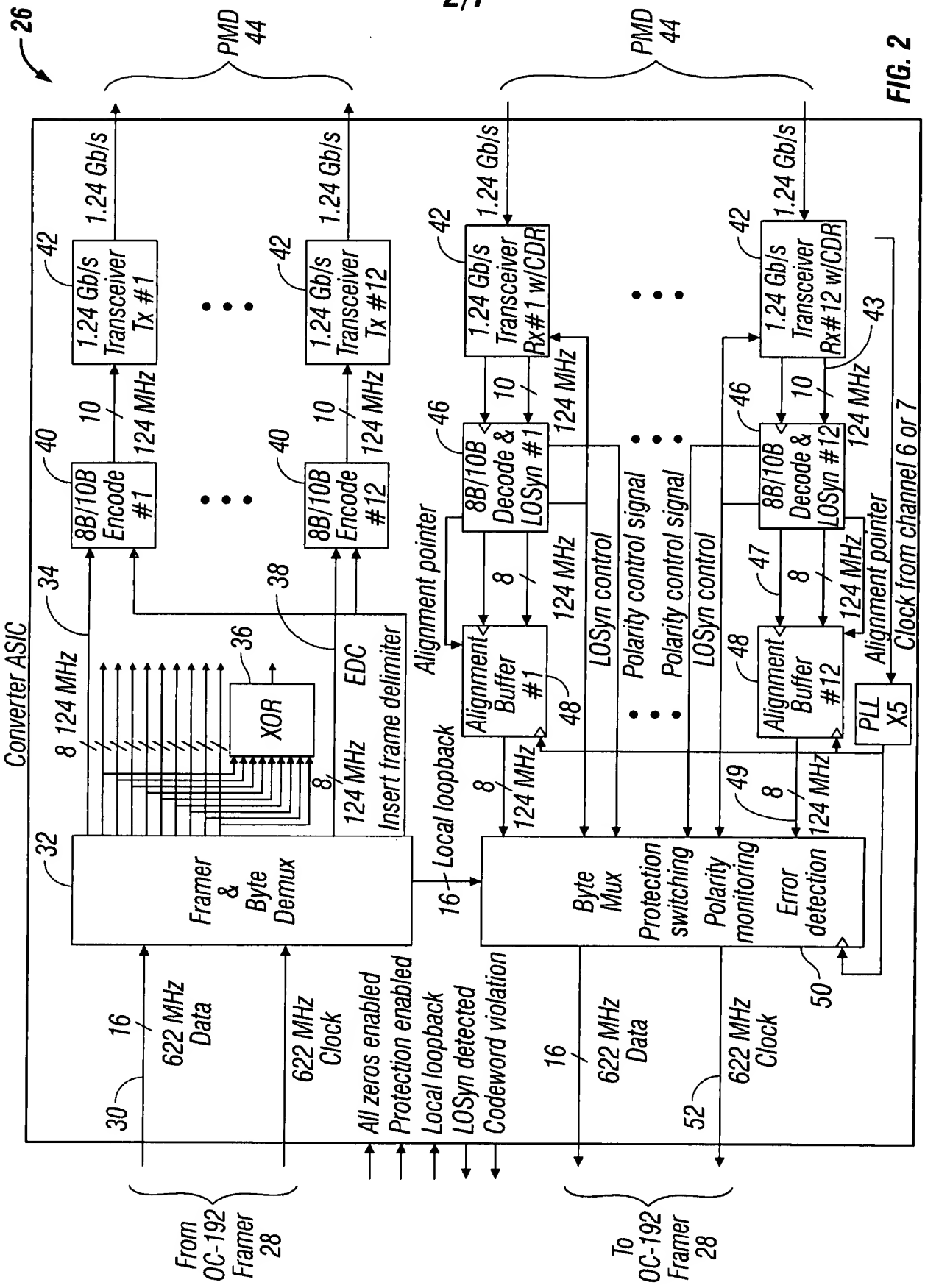

26
PMD 44
PMD 44
1.24 Gb/s
1.24 Gb/s
1.24 Gb/s
1.24 Gb/s
42
1.24 Gb/s Transceiver Tx #1
1.24 Gb/s Transceiver Tx #12
1.24 Gb/s Transceiver Rx#1 w/CDR
1.24 Gb/s Transceiver Rx#12 w/CDR
40
8B/10B Encode #1
8B/10B Encode #12
46
8B/10B Decode & LOSyn #1
8B/10B Decode & LOSyn #12
10
124 MHz
43
Converter ASIC
34
8 124 MHz
36
XOR
38
EDC
Insert frame delimiter
Alignment pointer
8
124 MHz
47
48
Alignment Buffer #1
Alignment Buffer #12
LOSyn control
Polarity control signal
PLL X5
Alignment pointer
Clock from channel 6 or 7
32
Framer & Byte Demux
Local loopback
16
49
Byte Mux
Protection switching
Polarity monitoring
Error detection
50
30
16
622 MHz Data
622 MHz Clock
All zeros enabled
Protection enabled
Local loopback
LOSyn detected
Codeword violation
52
From OC-192 Framer 28
To OC-192 Framer 28

FIG. 2

Code group name	Octet Value	Current RD- abcdei fghj	Current RD+ abcdei fghj
K28.5	BC	001111 1010	110000 0101
D3.1[a]	23	110001 1001	110001 1001
D21.2[a]	55	101010 0101	101010 0101

a. Both D3.1 and D21.2 have neutral mark/space density.

72 70

FIG. 3

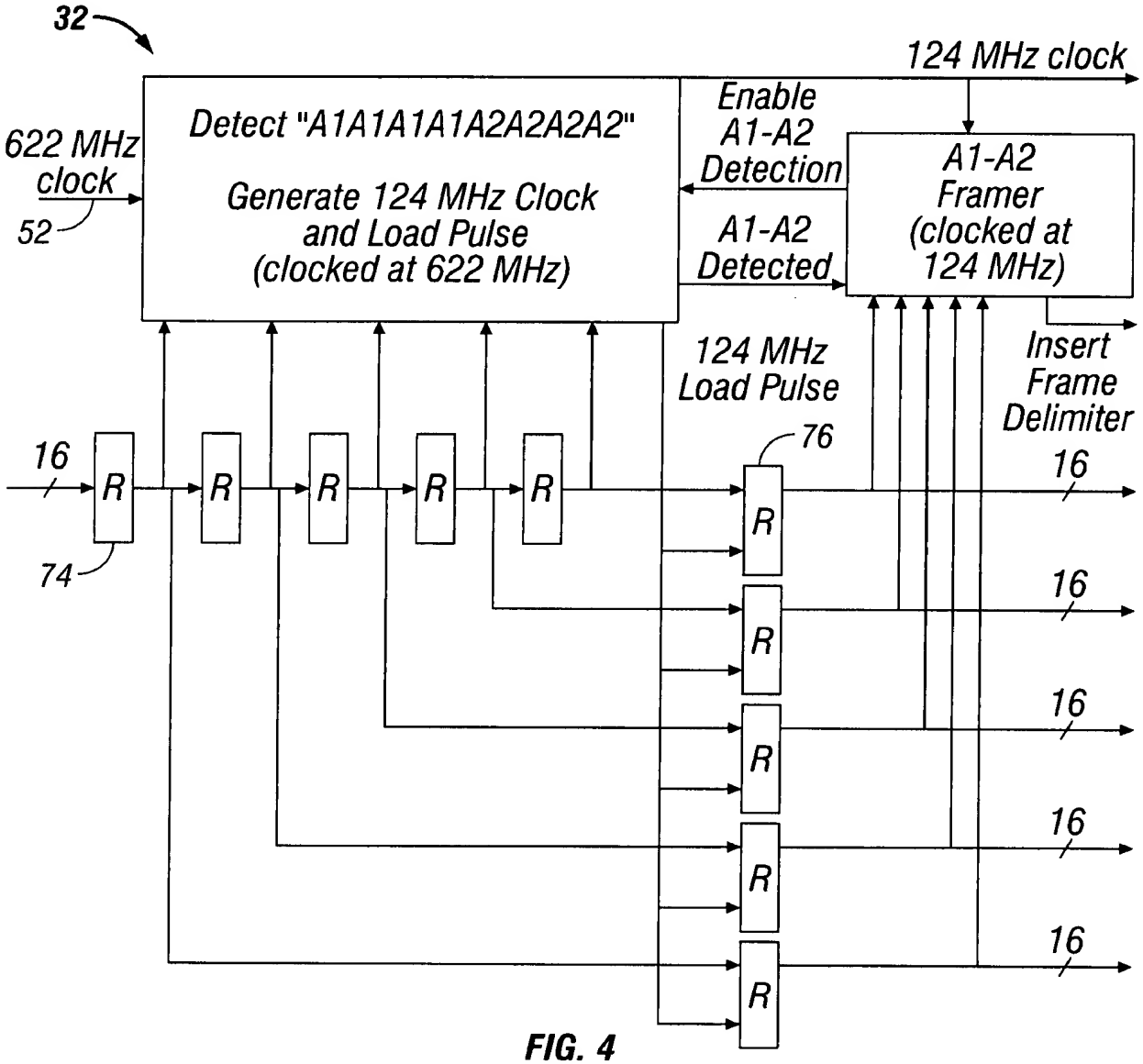


FIG. 4

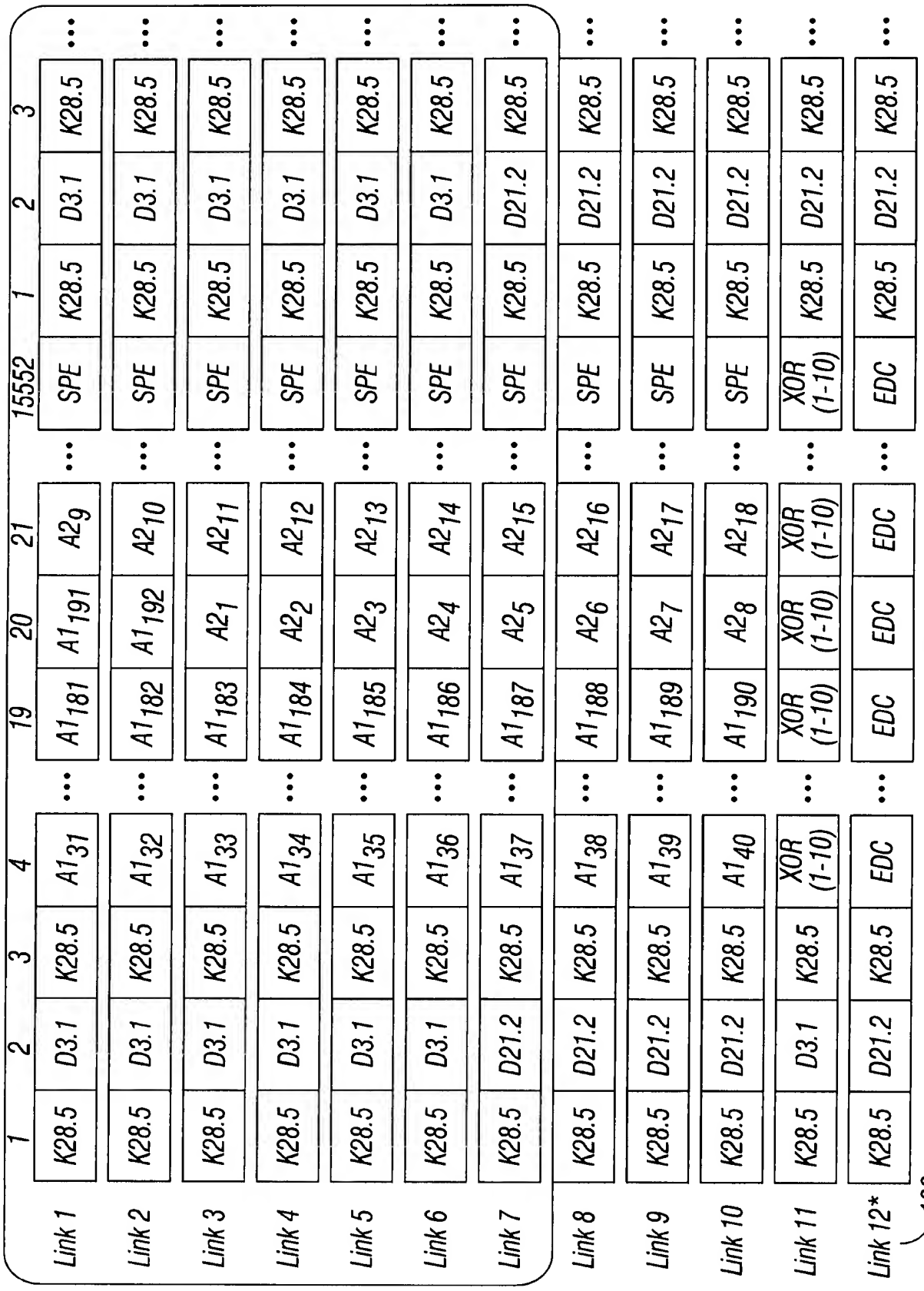

1
2
3
4
19
20
21
15552
1
2
3
Link 1
Link 2
Link 3
Link 4
Link 5
Link 6
Link 7
Link 8
Link 9
Link 10
Link 11
Link 12*
100
K28.5
D3.1
K28.5
A1 31
A1 181
A1 191
A2 9
SPE
K28.5
D3.1
K28.5
A1 32
A1 182
A1 192
A2 10
SPE
K28.5
D3.1
K28.5
A1 33
A1 183
A2 1
A2 11
SPE
K28.5
D3.1
K28.5
A1 34
A1 184
A2 2
A2 12
SPE
K28.5
D3.1
K28.5
A1 35
A1 185
A2 3
A2 13
SPE
K28.5
D3.1
K28.5
A1 36
A1 186
A2 4
A2 14
SPE
K28.5
D3.1
K28.5
A1 37
A1 187
A2 5
A2 15
SPE
K28.5
D21.2
K28.5
A1 38
A1 188
A2 6
A2 16
SPE
K28.5
D21.2
K28.5
A1 39
A1 189
A2 7
A2 17
SPE
K28.5
D21.2
K28.5
A1 40
A1 190
A2 8
A2 18
SPE
K28.5
D21.2
K28.5
XOR (1-10)
XOR (1-10)
XOR (1-10)
XOR (1-10)
K28.5
D21.2
K28.5
EDC
EDC
EDC
EDC
K28.5
D21.2
K28.5

FIG. 5

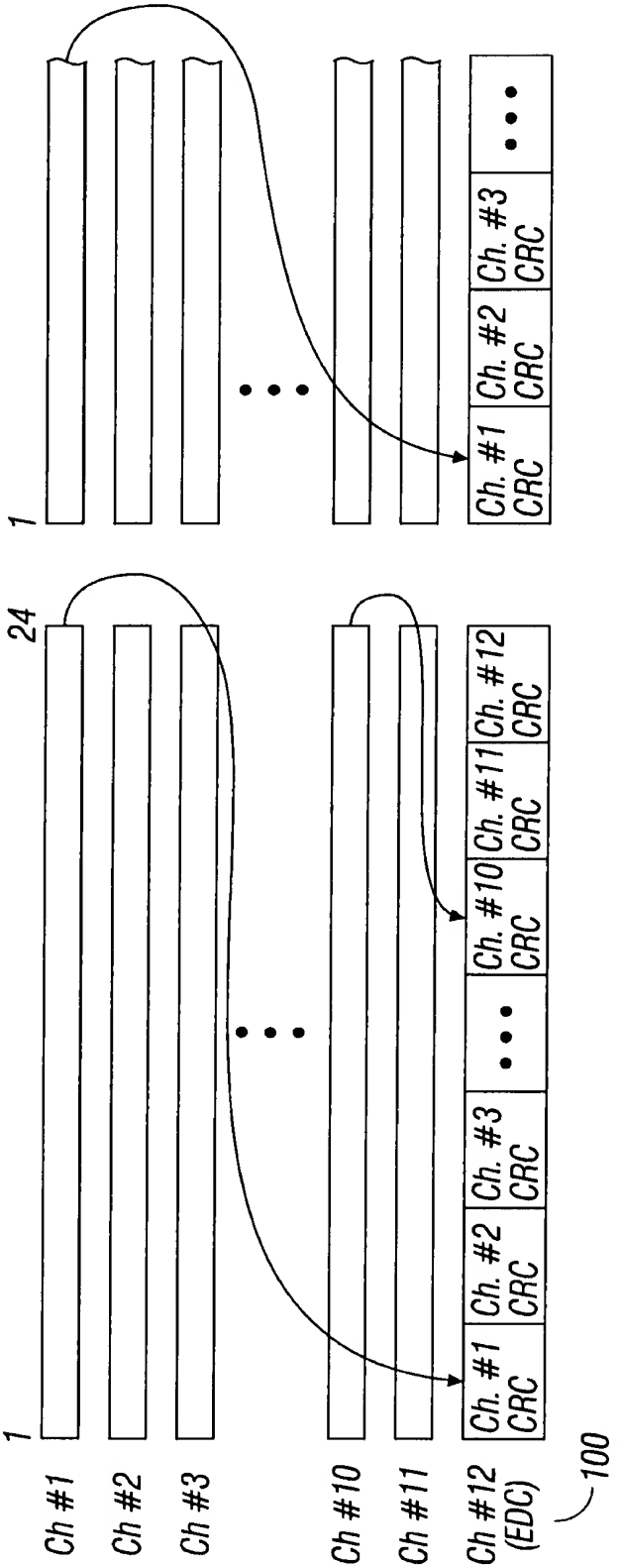

1
24
Ch. #1 CRC
Ch. #2 CRC
Ch. #3 CRC
Ch. #10 CRC
Ch. #11 CRC
Ch. #12 CRC
Ch #1
Ch #2
Ch #3
Ch #10
Ch #11
Ch #12 (EDC)
100

FIG. 6

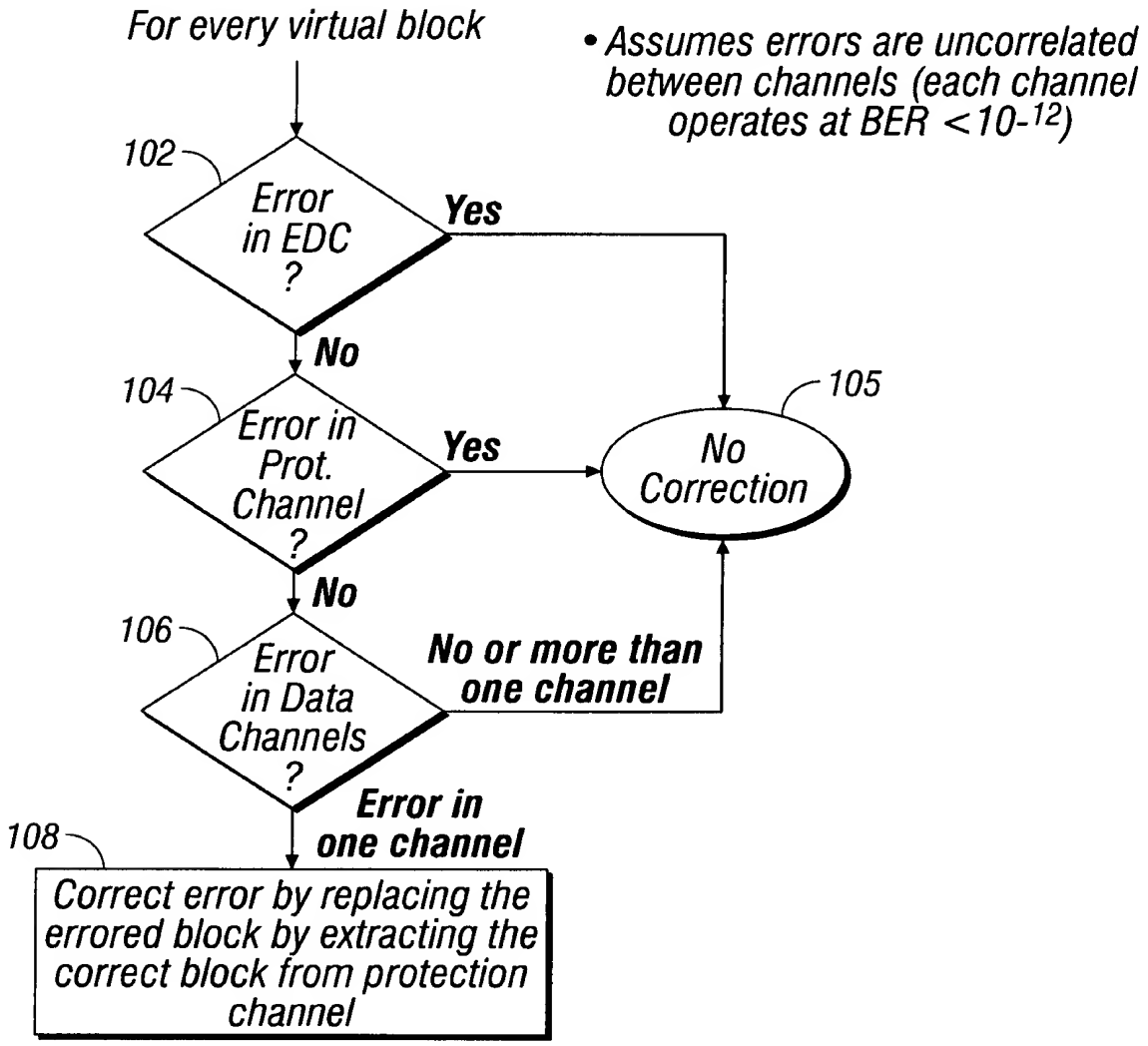

For every virtual block
• Assumes errors are uncorrelated between channels (each channel operates at BER <10-12)
102
Error in EDC ?
Yes
No
104
Error in Prot. Channel ?
Yes
105
No Correction
No
106
Error in Data Channels ?
No or more than one channel
Error in one channel
108
Correct error by replacing the errored block by extracting the correct block from protection channel

FIG. 7

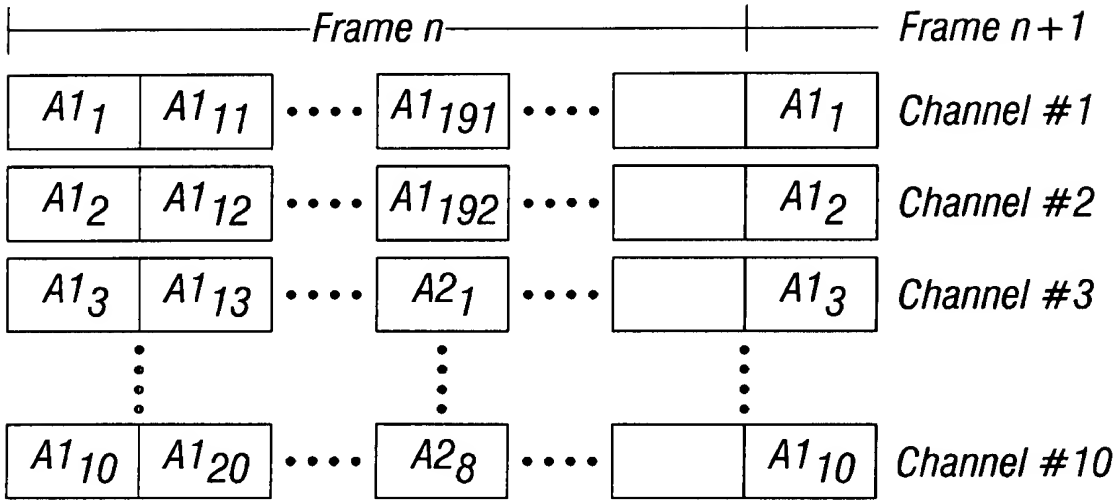
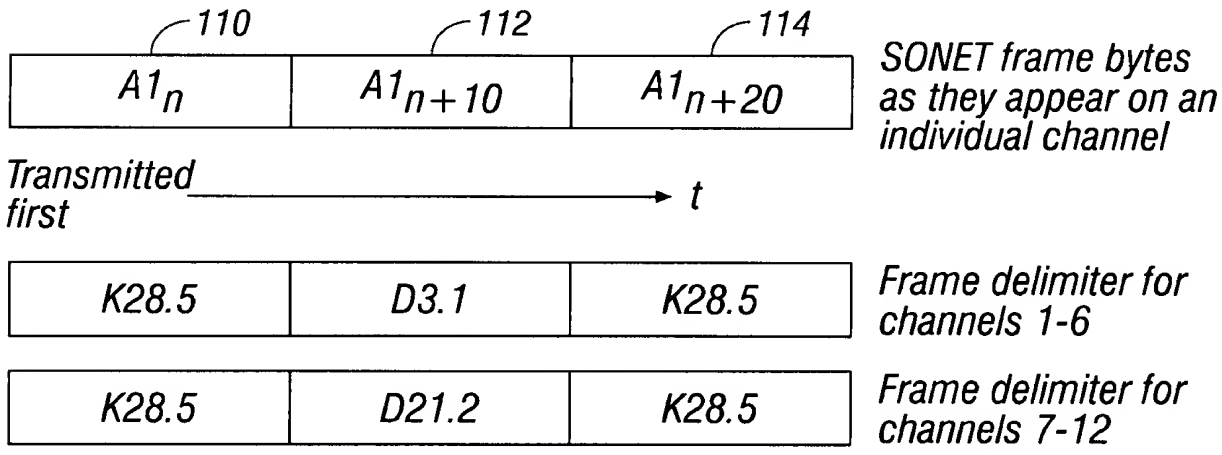


FIG. 8



Note: D3.1 and D21.2 have neutral running disparity to ensure that two K28.5's have opposite disparity.
D3.1 and D21.2 are used as the channel identifiers

FIG. 9